FIG.1

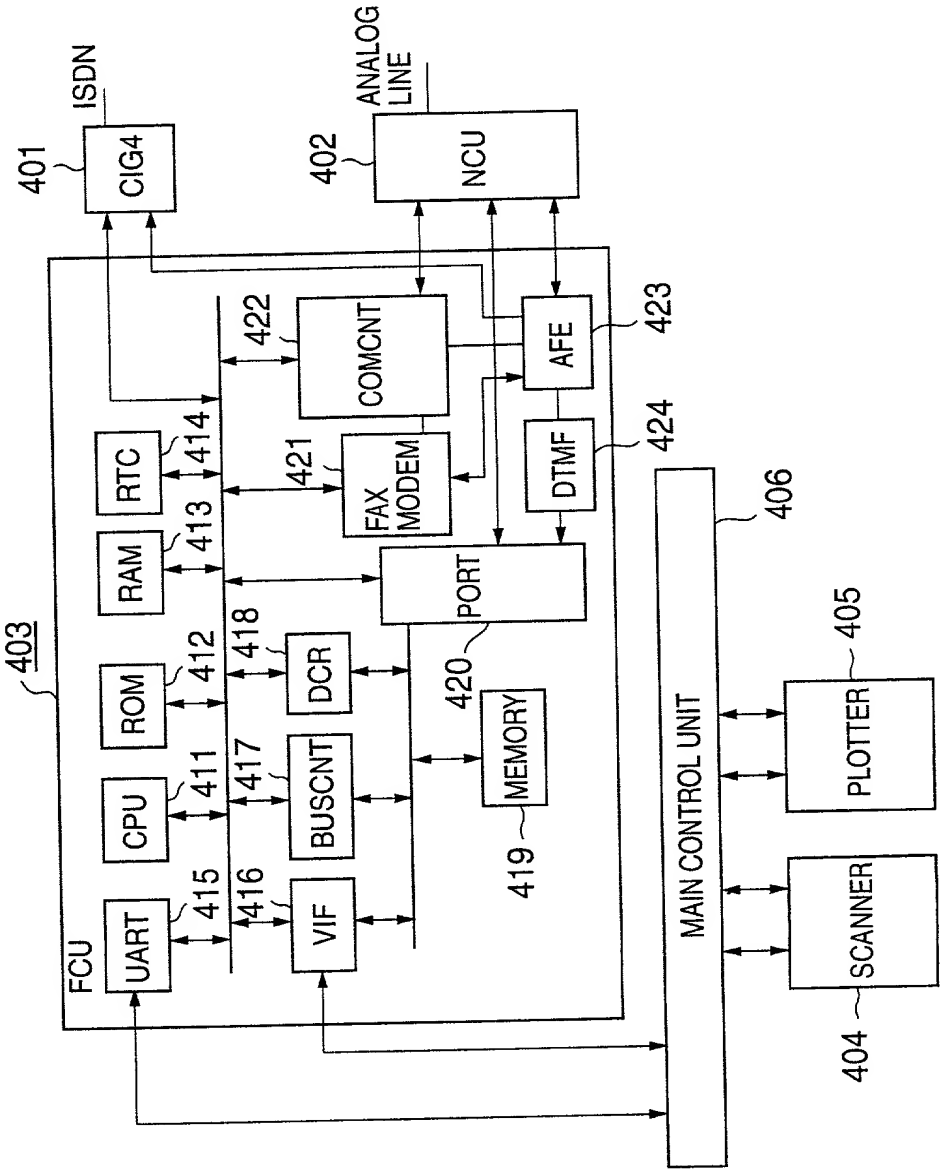
ISDN
401
CIG4
ANALOG LINE
402
NCU
403
FCU
UART
415
CPU
411
ROM
412
RAM
413
RTC
414
416
VIF
417
BUSCNT
418
DCR
419
420
MEMORY
PORT
421
FAX MODEM
422
COMCNT
423
AFE
424
DTMF
406
MAIN CONTROL UNIT
405
PLOTTER
404
SCANNER

FIG.2

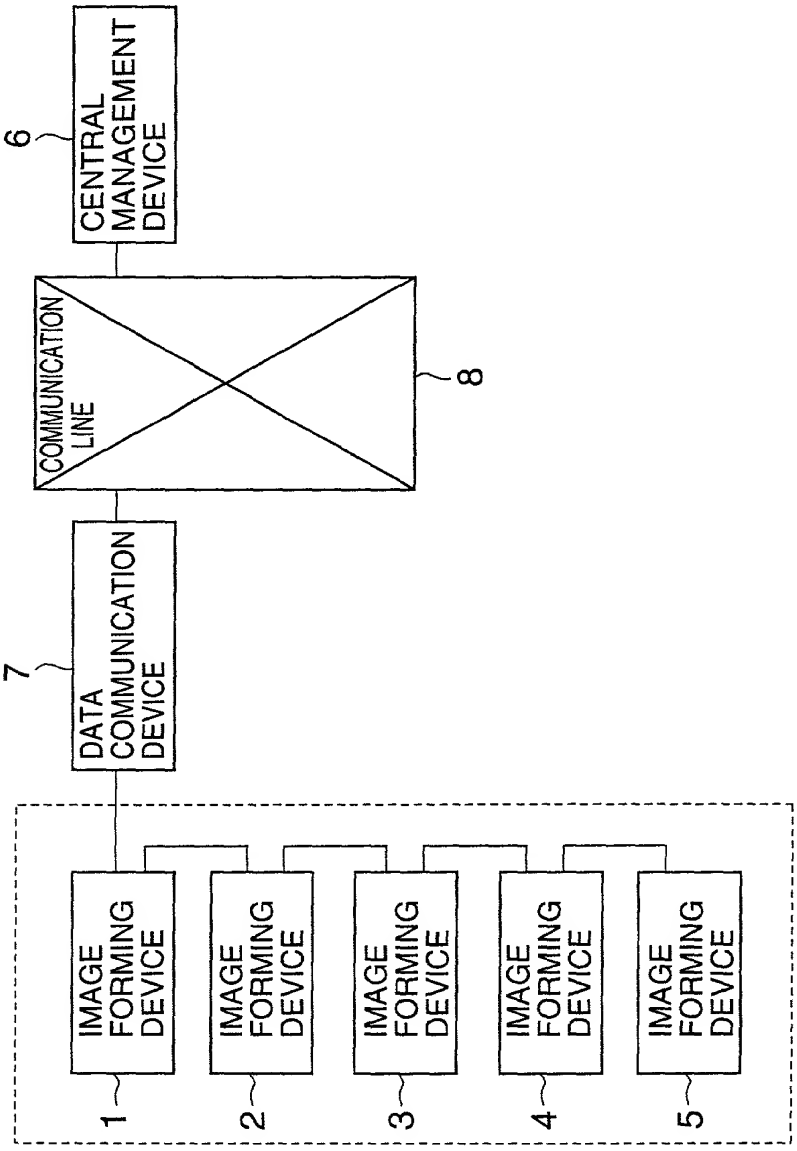
CENTRAL MANAGEMENT DEVICE
6
COMMUNICATION LINE
8
DATA COMMUNICATION DEVICE
7
IMAGE FORMING DEVICE
1
IMAGE FORMING DEVICE
2
IMAGE FORMING DEVICE
3
IMAGE FORMING DEVICE
4
IMAGE FORMING DEVICE
5

FIG.3

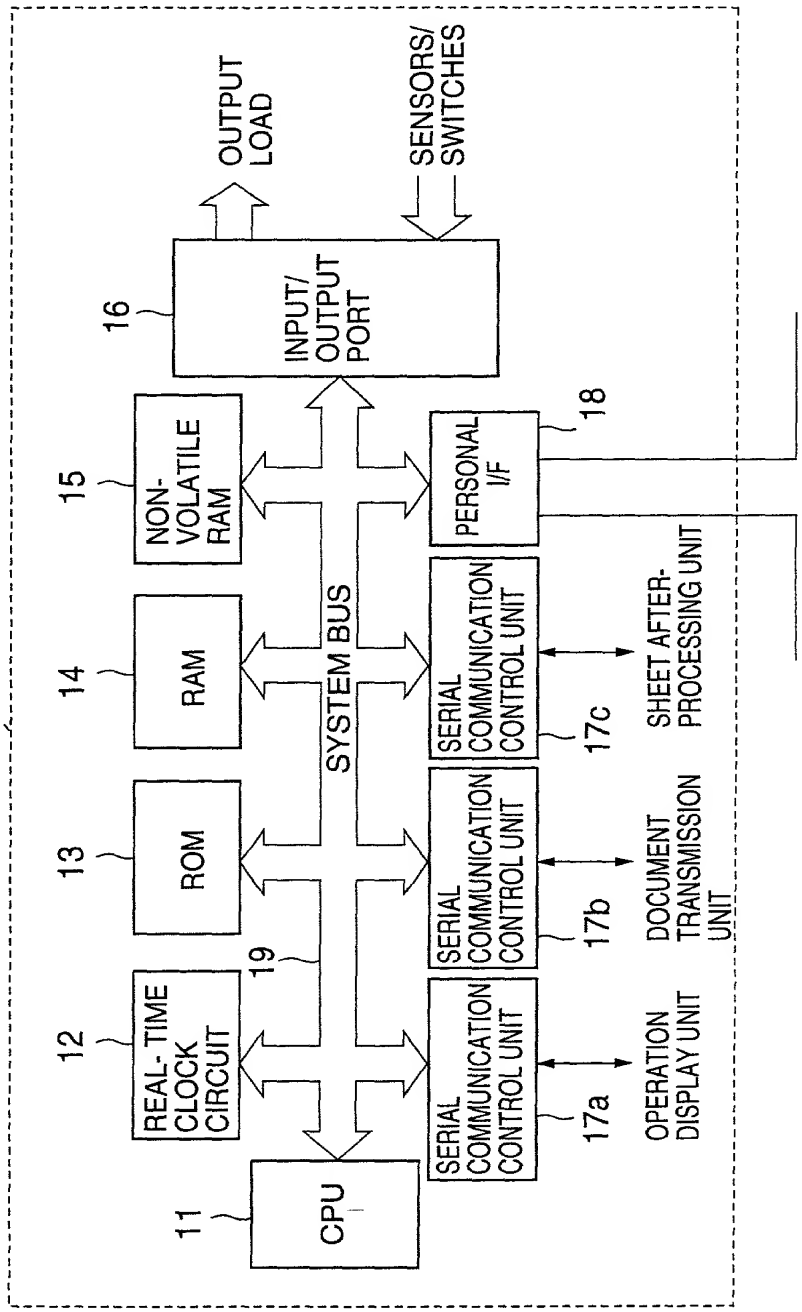
1-5
CPU
11
REAL-TIME CLOCK CIRCUIT
12
ROM
13
RAM
14
NON-VOLATILE RAM
15
INPUT/ OUTPUT PORT
16
PERSONAL I/F
18
SYSTEM BUS
19
SERIAL COMMUNICATION CONTROL UNIT
17a
SERIAL COMMUNICATION CONTROL UNIT
17b
SERIAL COMMUNICATION CONTROL UNIT
17c
OUTPUT LOAD
SENSORS/ SWITCHES
OPERATION DISPLAY UNIT
DOCUMENT TRANSMISSION UNIT
SHEET AFTER-PROCESSING UNIT

FIG.4

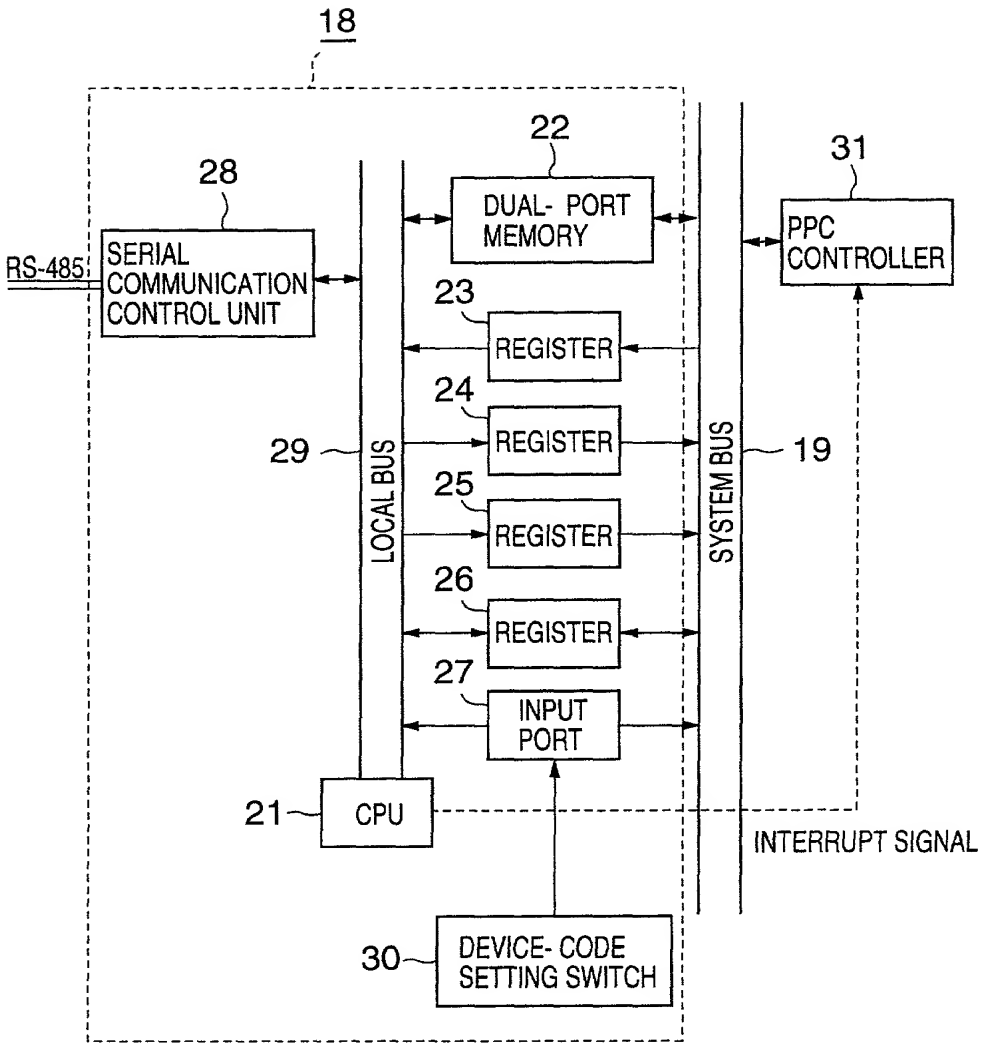
18
22
31
28
DUAL- PORT MEMORY
PPC CONTROLLER
RS-485
SERIAL COMMUNICATION CONTROL UNIT
23
REGISTER
24
REGISTER
29
LOCAL BUS
SYSTEM BUS
19
25
REGISTER
26
REGISTER
27
INPUT PORT
21
CPU
INTERRUPT SIGNAL
30
DEVICE- CODE SETTING SWITCH

FIG.5

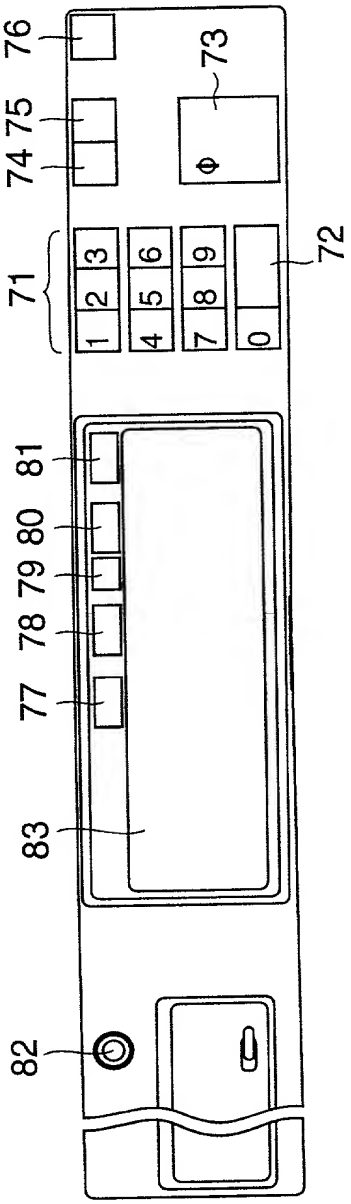

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FIG.6

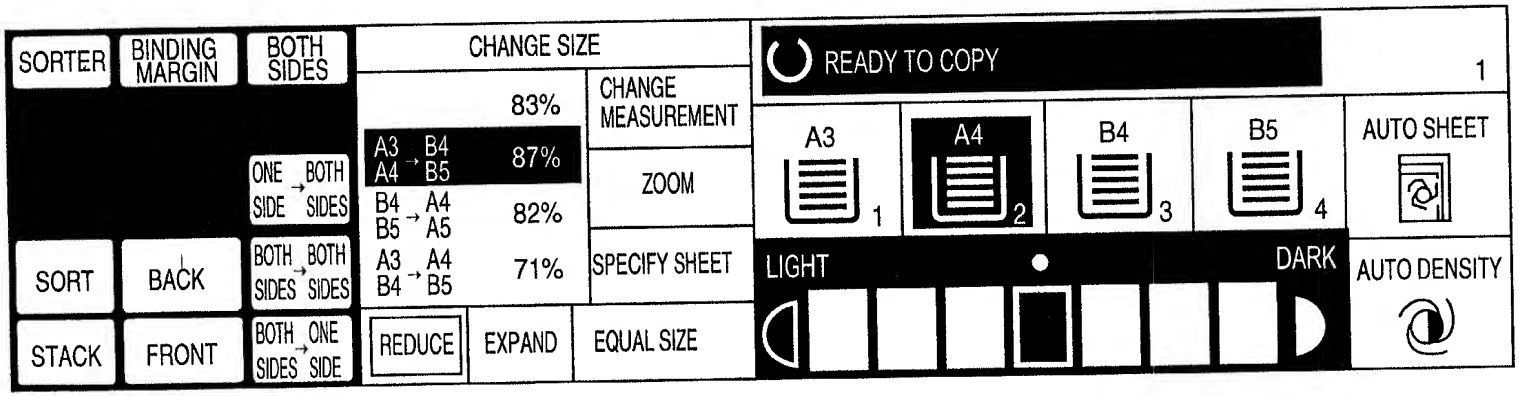

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FIG.7

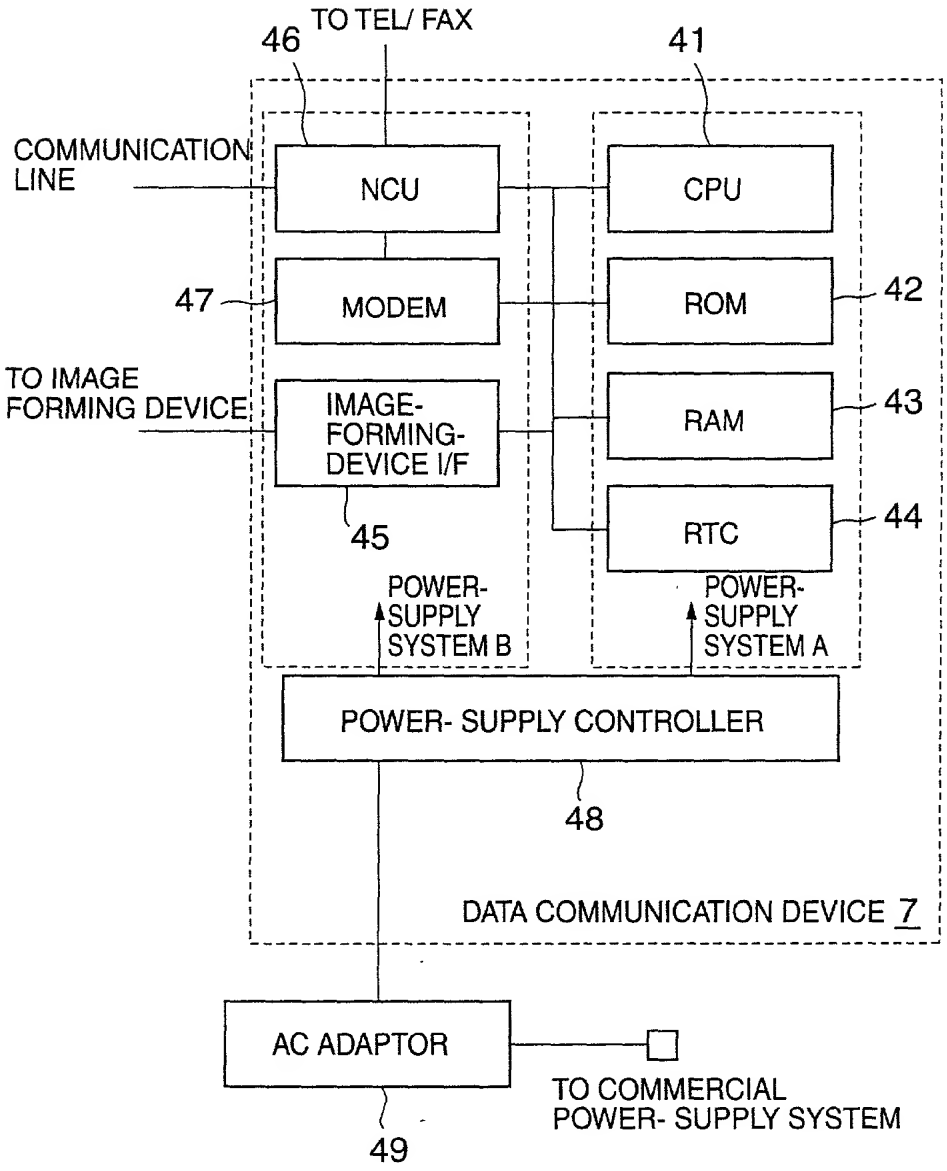

TO TEL/ FAX
46
41
COMMUNICATION LINE
NCU
CPU
47
MODEM
ROM
42
TO IMAGE FORMING DEVICE
IMAGE-FORMING-DEVICE I/F
RAM
43
45
RTC
44
POWER-SUPPLY SYSTEM B
POWER-SUPPLY SYSTEM A
POWER- SUPPLY CONTROLLER
48
DATA COMMUNICATION DEVICE 7
AC ADAPTOR
TO COMMERCIAL POWER- SUPPLY SYSTEM
49

FIG.8

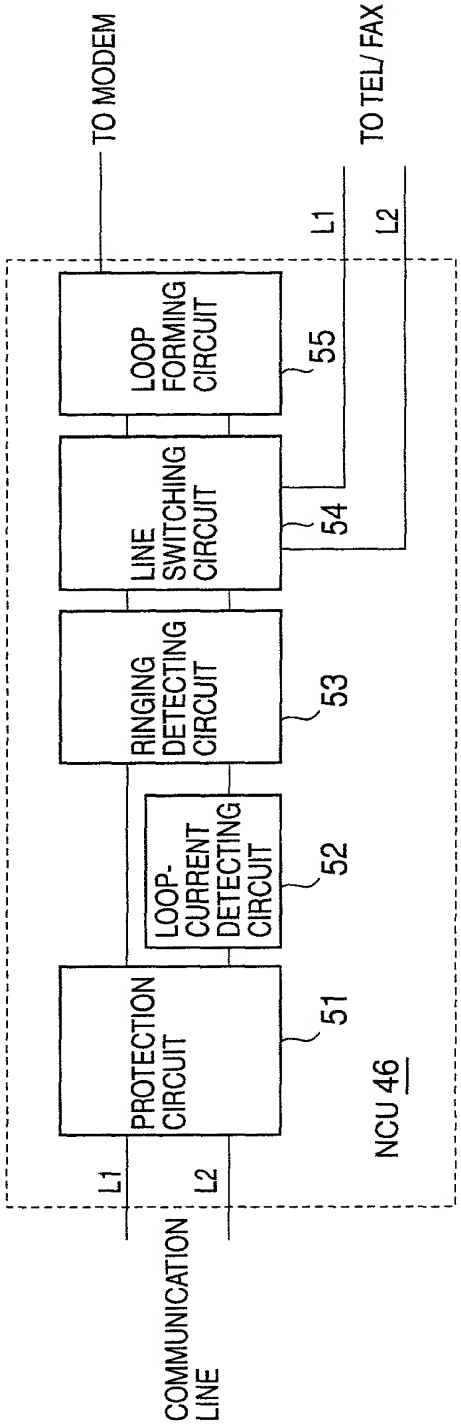

TO MODEM
TO TEL/ FAX
L1
L2
LOOP FORMING CIRCUIT
55
LINE SWITCHING CIRCUIT
54
RINGING DETECTING CIRCUIT
53
LOOP-CURRENT DETECTING CIRCUIT
52
PROTECTION CIRCUIT
51
NCU 46
L1
L2
COMMUNICATION LINE

FIG.9

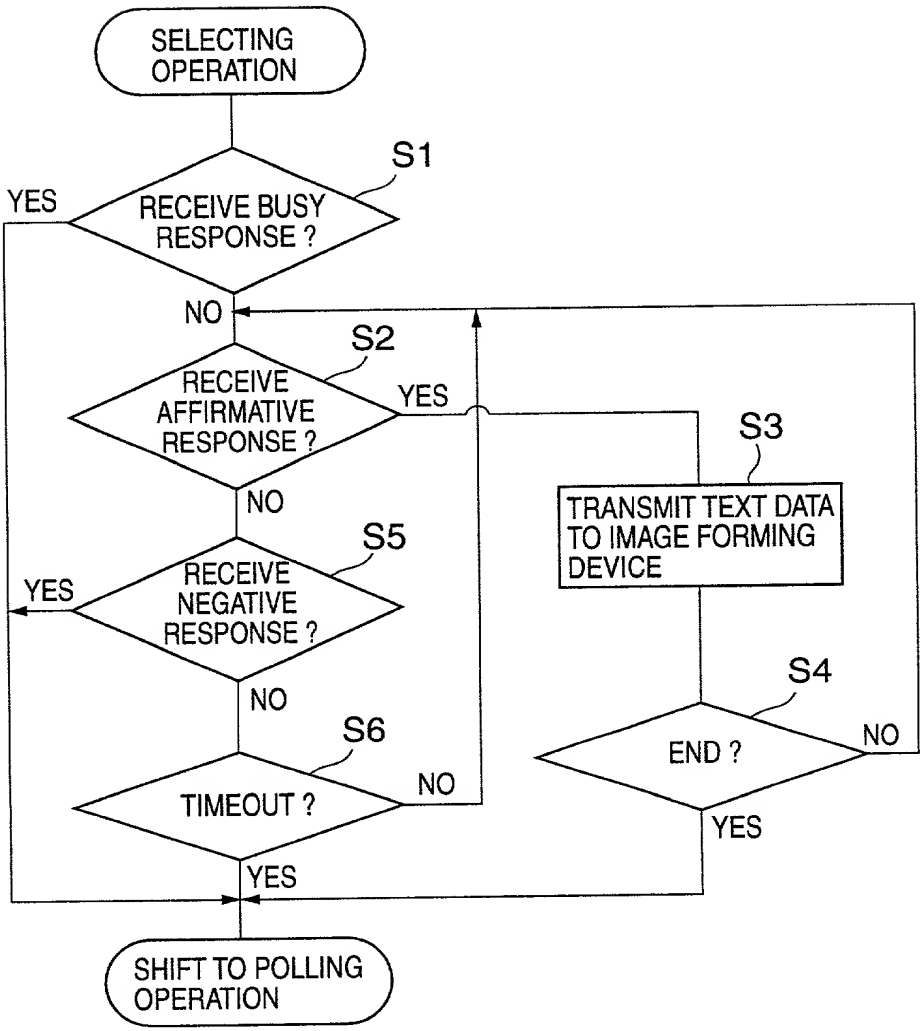
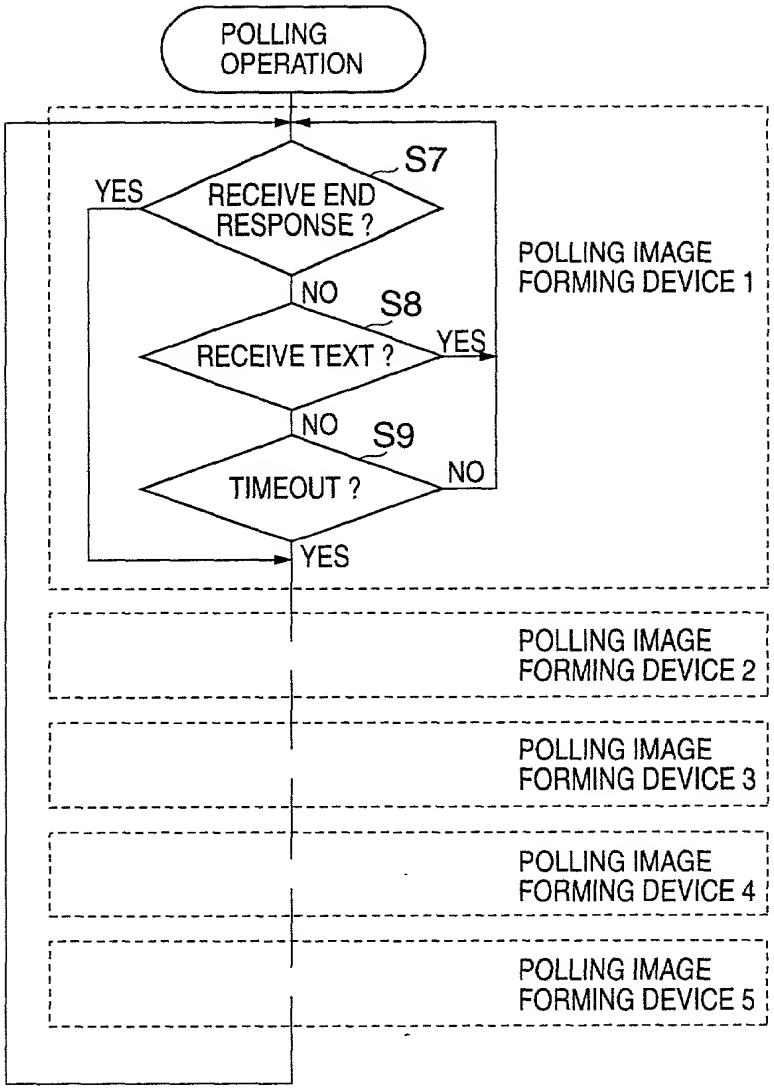
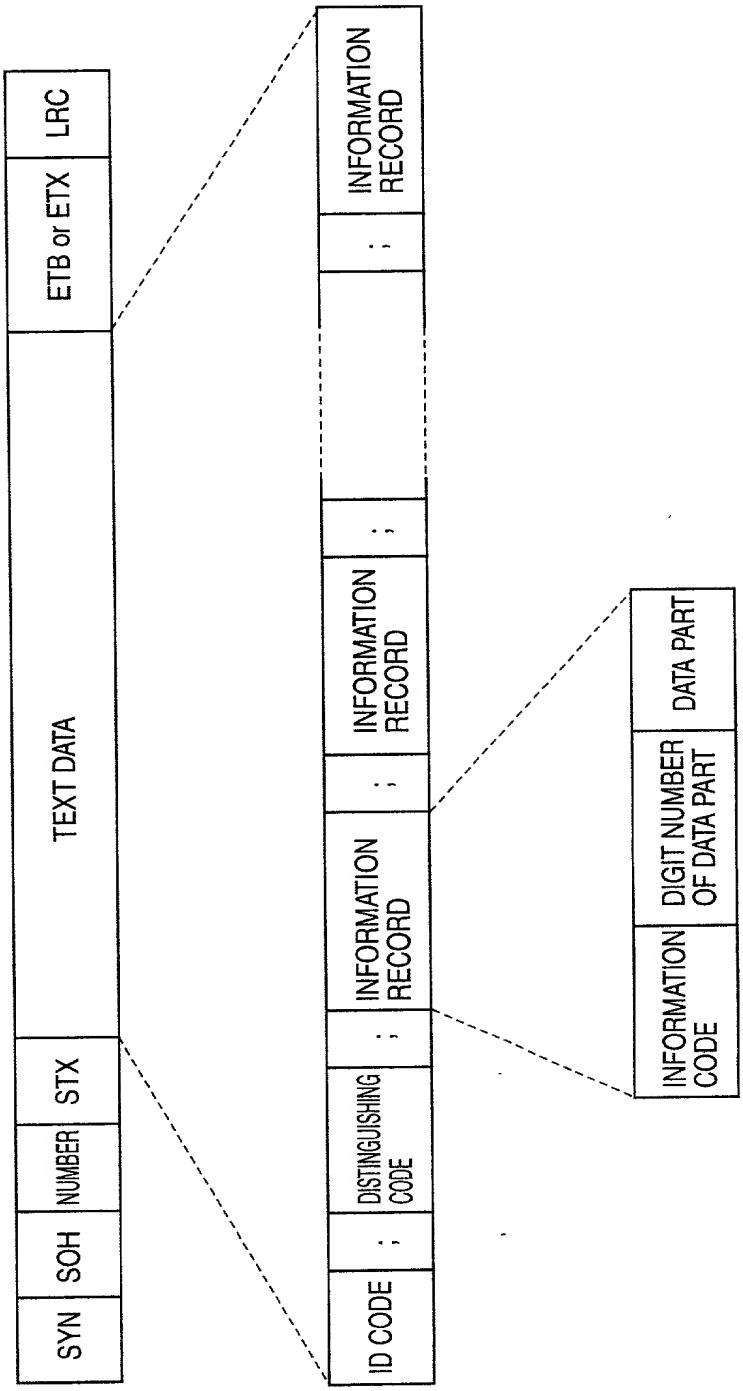

SELECTING OPERATION
S1
RECEIVE BUSY RESPONSE ?
YES
NO
S2
RECEIVE AFFIRMATIVE RESPONSE ?
YES
NO
S3
TRANSMIT TEXT DATA TO IMAGE FORMING DEVICE
S4
END ?
NO
YES
S5
RECEIVE NEGATIVE RESPONSE ?
YES
NO
S6
TIMEOUT ?
NO
YES
SHIFT TO POLLING OPERATION

FIG.10



JP 2006-246264 A 2006.09.14

FIG.11


SYN
SOH
NUMBER
STX
TEXT DATA
ETB or ETX
LRC
ID CODE
DISTINGUISHING CODE
INFORMATION RECORD
INFORMATION RECORD
INFORMATION RECORD
INFORMATION CODE
DIGIT NUMBER OF DATA PART
DATA PART

TOZ090 "A66A2860

FIG.12

CODE	PROCESS NAME	CONTENTS OF PROCESS
30	SC CALL	AUTOMATIC REPORT WHEN SC IS GENERATED
31	MANUAL CALL	AUTOMATIC REPORT WHEN MANUAL SWITCH IS PRESSED
32	ALARM TRANSMISSION	AUTOMATIC REPORT WHEN ALARM IS GENERATED
22	BLOCK BILLING PROCESS	AUTOMATIC REPORT WHEN REACHING BLOCK BILLING NUMBER
02	DATA READING PROCESS	READ INTERNAL DATA OF PPC
04	DATA WRITING PROCESS	REWRITE INTERNAL DATA OF PPC
03	EXECUTION	EXECUTE TESTING, AND ETC BY REMOTE OPERATION
08	DEVICE- CODE CONFIRMATION	PROCESS FOR CHECKING COMMUNICATION FUNCTION

FIG.13

CODE	DATA LENGTH	CONTENTS
INFORMATION CODE	11	CODE INDICATING TYPE OF CONCRETE INFORMATION
DIGIT NUMBER OF DATA PART	2	· INDICATING DATA LENGTH OF DATA PART IN ASCII CODE · "00" IF THERE IS NO DATA PART
DATA PART	VARIABLE	· CONTENTS OF EACH INFORMATION CODE · DATA PART DOES NOT EXIST IF DIGIT NUMBER OF DATA PART IS "00"

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FIG.14

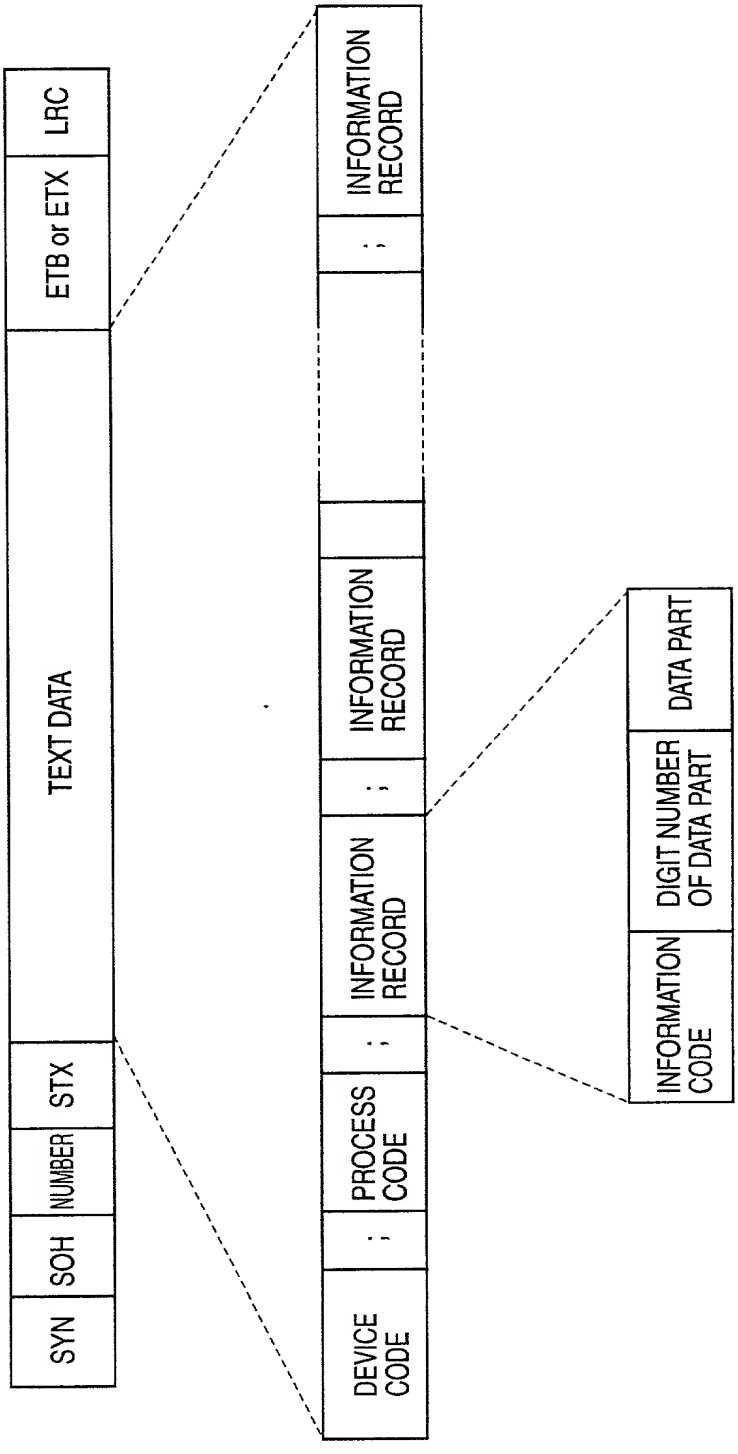
SYN
SOH
NUMBER
STX
TEXT DATA
ETB or ETX
LRC
DEVICE CODE
PROCESS CODE
INFORMATION RECORD
INFORMATION RECORD
INFORMATION RECORD
INFORMATION CODE
DIGIT NUMBER OF DATA PART
DATA PART

FIG.15

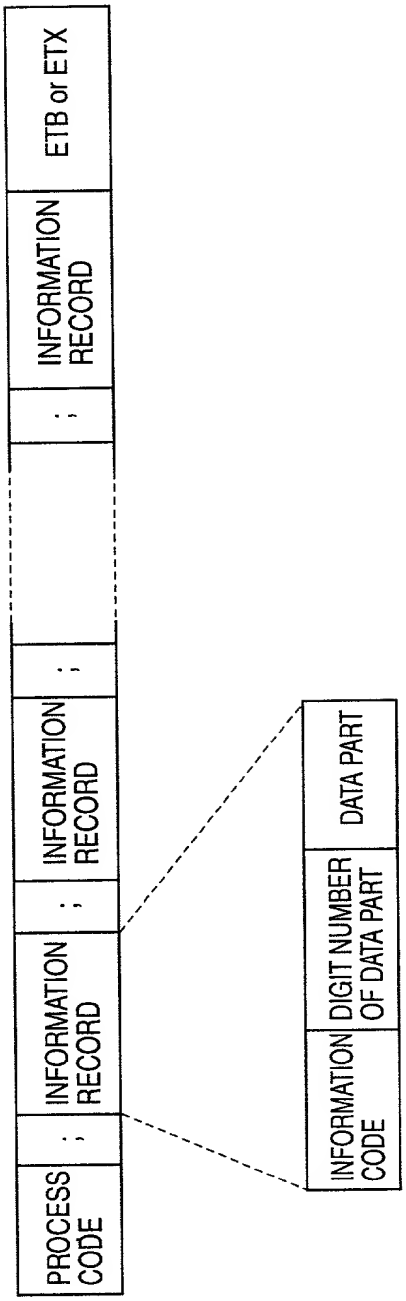
PROCESS CODE
INFORMATION RECORD
INFORMATION RECORD
INFORMATION RECORD
ETB or ETX
INFORMATION CODE
DIGIT NUMBER OF DATA PART
DATA PART

FIG.16

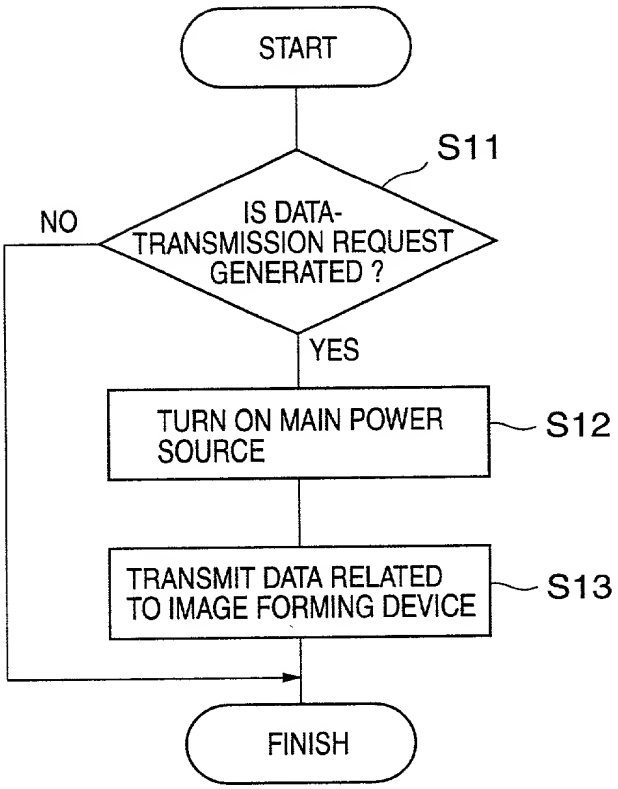
START
S11
IS DATA-TRANSMISSION REQUEST GENERATED ?
NO
YES
TURN ON MAIN POWER SOURCE
S12
TRANSMIT DATA RELATED TO IMAGE FORMING DEVICE
S13
FINISH

FIG.17

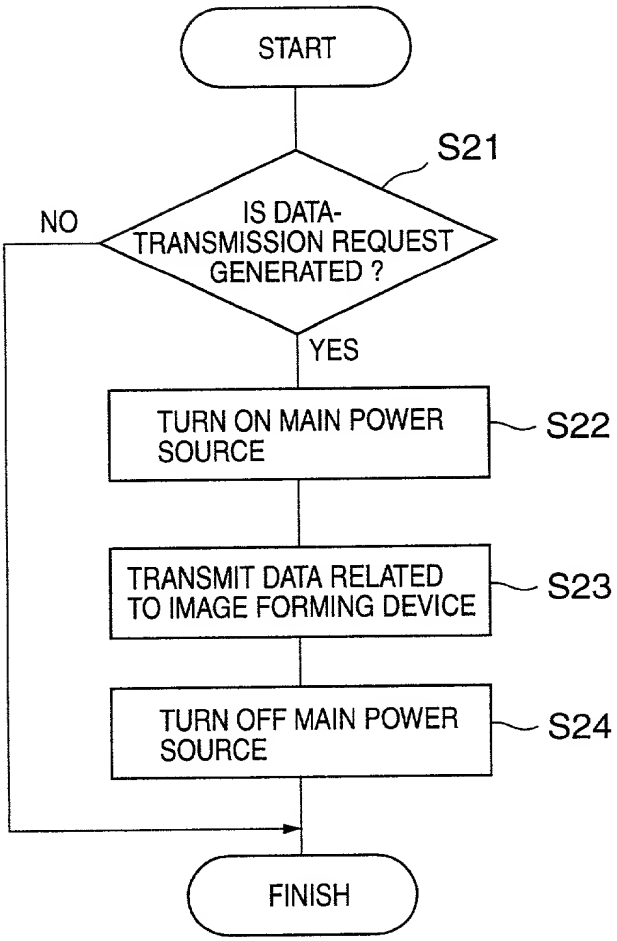
START
S21
IS DATA-TRANSMISSION REQUEST GENERATED ?
NO
YES
TURN ON MAIN POWER SOURCE
S22
TRANSMIT DATA RELATED TO IMAGE FORMING DEVICE
S23
TURN OFF MAIN POWER SOURCE
S24
FINISH

FIG.18

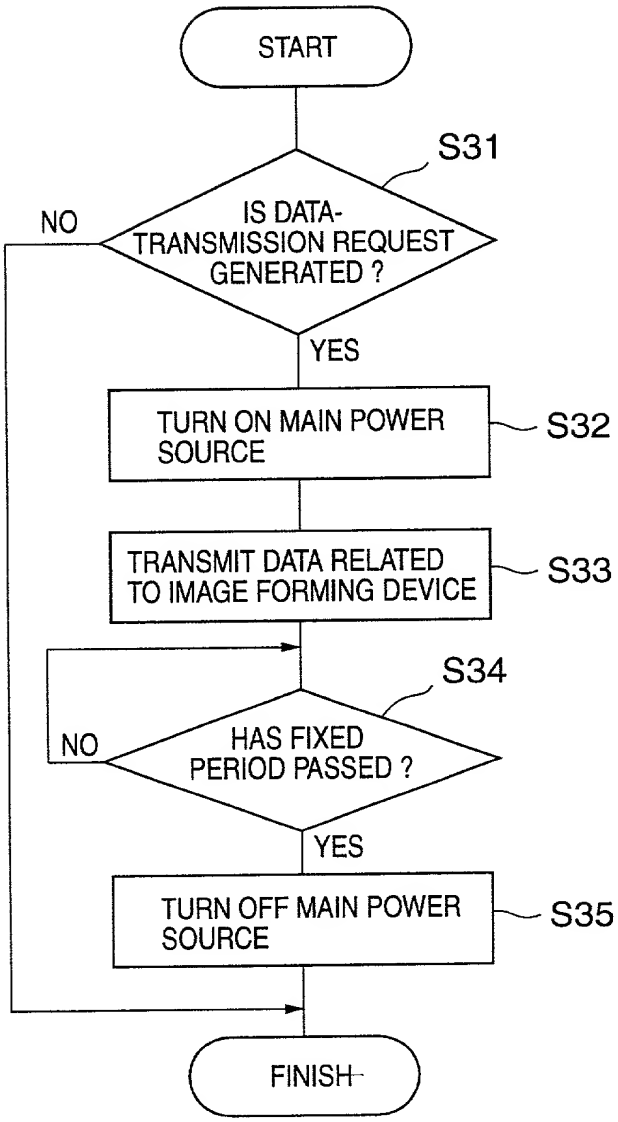
START
S31
IS DATA-TRANSMISSION REQUEST GENERATED ?
NO
YES
TURN ON MAIN POWER SOURCE
S32
TRANSMIT DATA RELATED TO IMAGE FORMING DEVICE
S33
S34
HAS FIXED PERIOD PASSED ?
NO
YES
TURN OFF MAIN POWER SOURCE
S35
FINISH

FIG.19

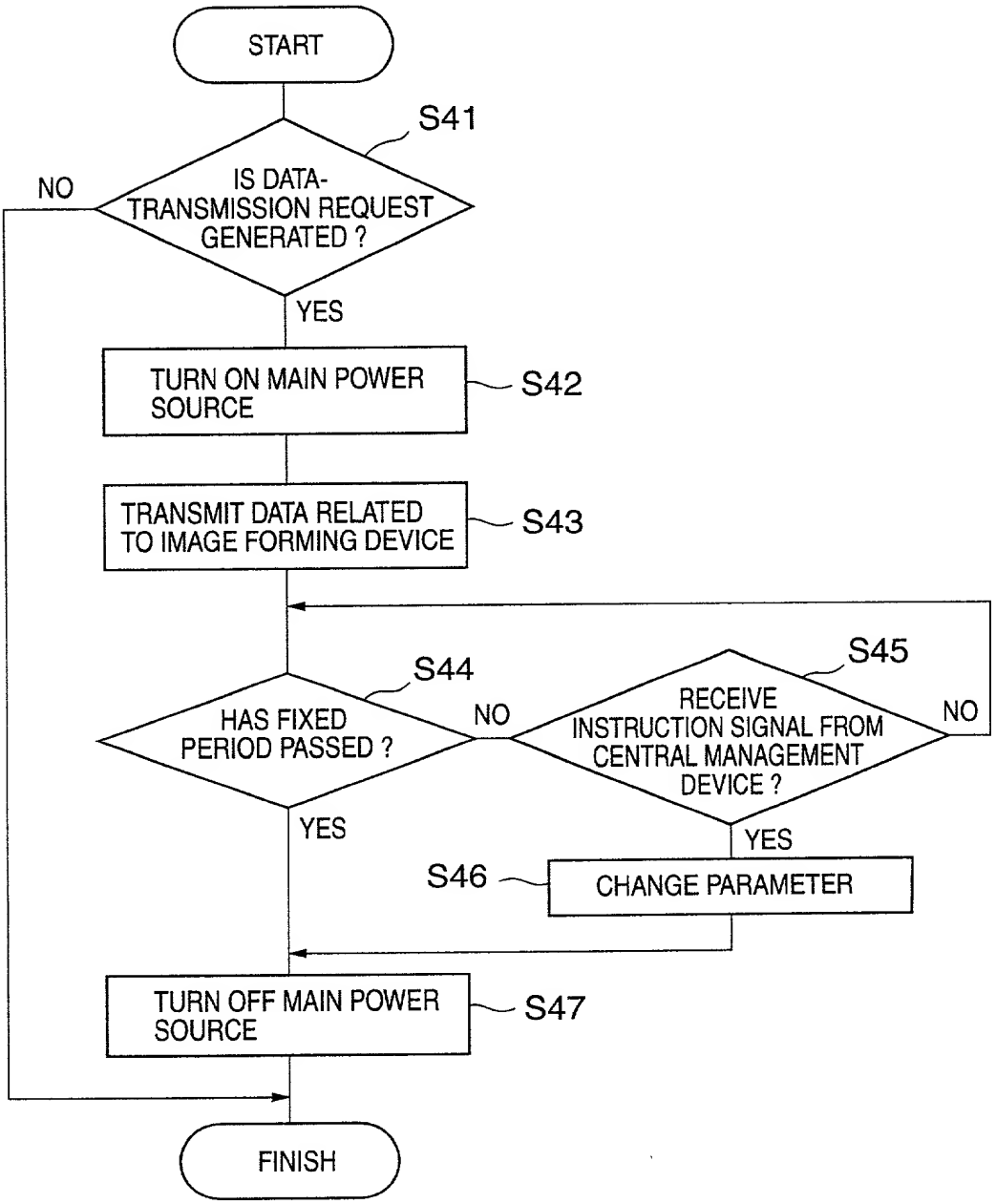
START
S41
IS DATA-TRANSMISSION REQUEST GENERATED ?
NO
YES
TURN ON MAIN POWER SOURCE
S42
TRANSMIT DATA RELATED TO IMAGE FORMING DEVICE
S43
S44
HAS FIXED PERIOD PASSED ?
NO
YES
S45
RECEIVE INSTRUCTION SIGNAL FROM CENTRAL MANAGEMENT DEVICE ?
NO
YES
S46
CHANGE PARAMETER
TURN OFF MAIN POWER SOURCE
S47
FINISH

FIG.20

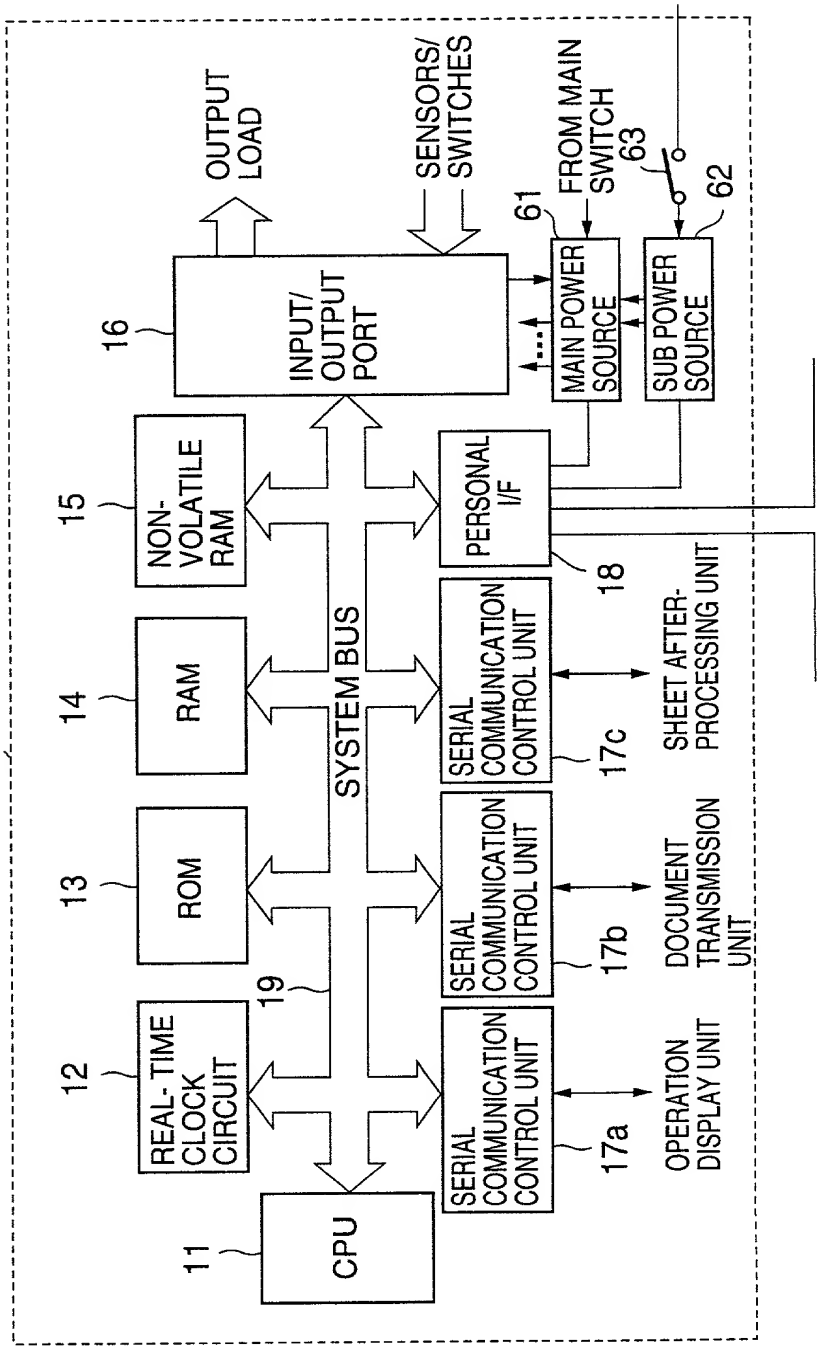
1-5
CPU
11
REAL-TIME CLOCK CIRCUIT
12
ROM
13
RAM
14
NON-VOLATILE RAM
15
INPUT/ OUTPUT PORT
16
SYSTEM BUS
19
SERIAL COMMUNICATION CONTROL UNIT
17a
SERIAL COMMUNICATION CONTROL UNIT
17b
SERIAL COMMUNICATION CONTROL UNIT
17c
PERSONAL I/F
18
OPERATION DISPLAY UNIT
DOCUMENT TRANSMISSION UNIT
SHEET AFTER-PROCESSING UNIT
OUTPUT LOAD
SENSORS/ SWITCHES
MAIN POWER SOURCE
61
FROM MAIN SWITCH
63
SUB POWER SOURCE
62

FIG.21

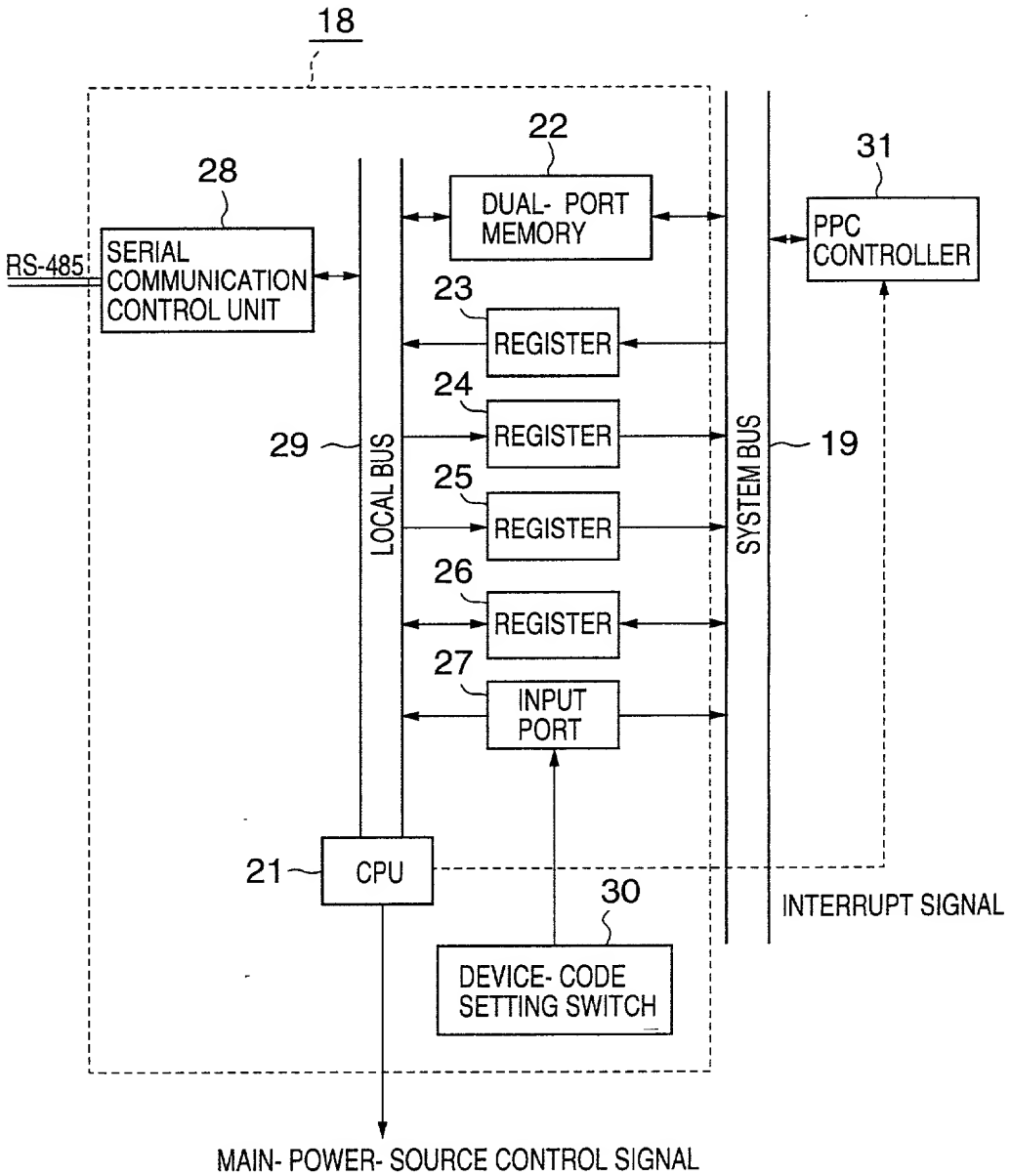
18
22
31
28
DUAL- PORT MEMORY
PPC CONTROLLER
RS-485
SERIAL COMMUNICATION CONTROL UNIT
23
REGISTER
24
REGISTER
29
LOCAL BUS
SYSTEM BUS
19
25
REGISTER
26
REGISTER
27
INPUT PORT
21
CPU
30
INTERRUPT SIGNAL
DEVICE- CODE SETTING SWITCH
MAIN- POWER- SOURCE CONTROL SIGNAL

FIG.22

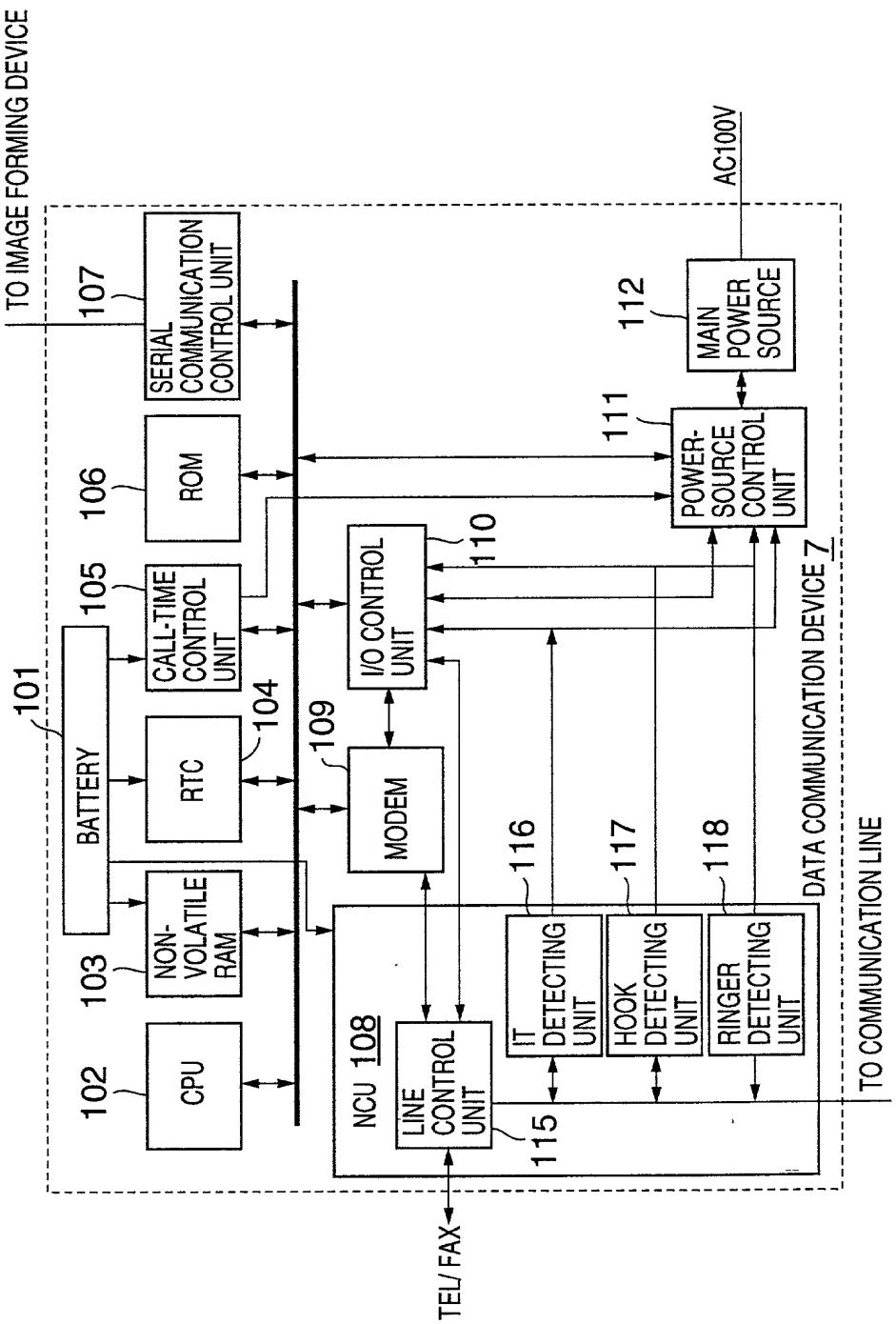
TO IMAGE FORMING DEVICE
DATA COMMUNICATION DEVICE 7
AC100V
TO COMMUNICATION LINE
TEL/ FAX
101
BATTERY
102
CPU
103
NON-VOLATILE RAM
104
RTC
105
CALL-TIME CONTROL UNIT
106
ROM
107
SERIAL COMMUNICATION CONTROL UNIT
108
NCU
109
MODEM
110
I/O CONTROL UNIT
111
POWER-SOURCE CONTROL UNIT
112
MAIN POWER SOURCE
115
LINE CONTROL UNIT
116
IT DETECTING UNIT
117
HOOK DETECTING UNIT
118
RINGER DETECTING UNIT

FIG.23

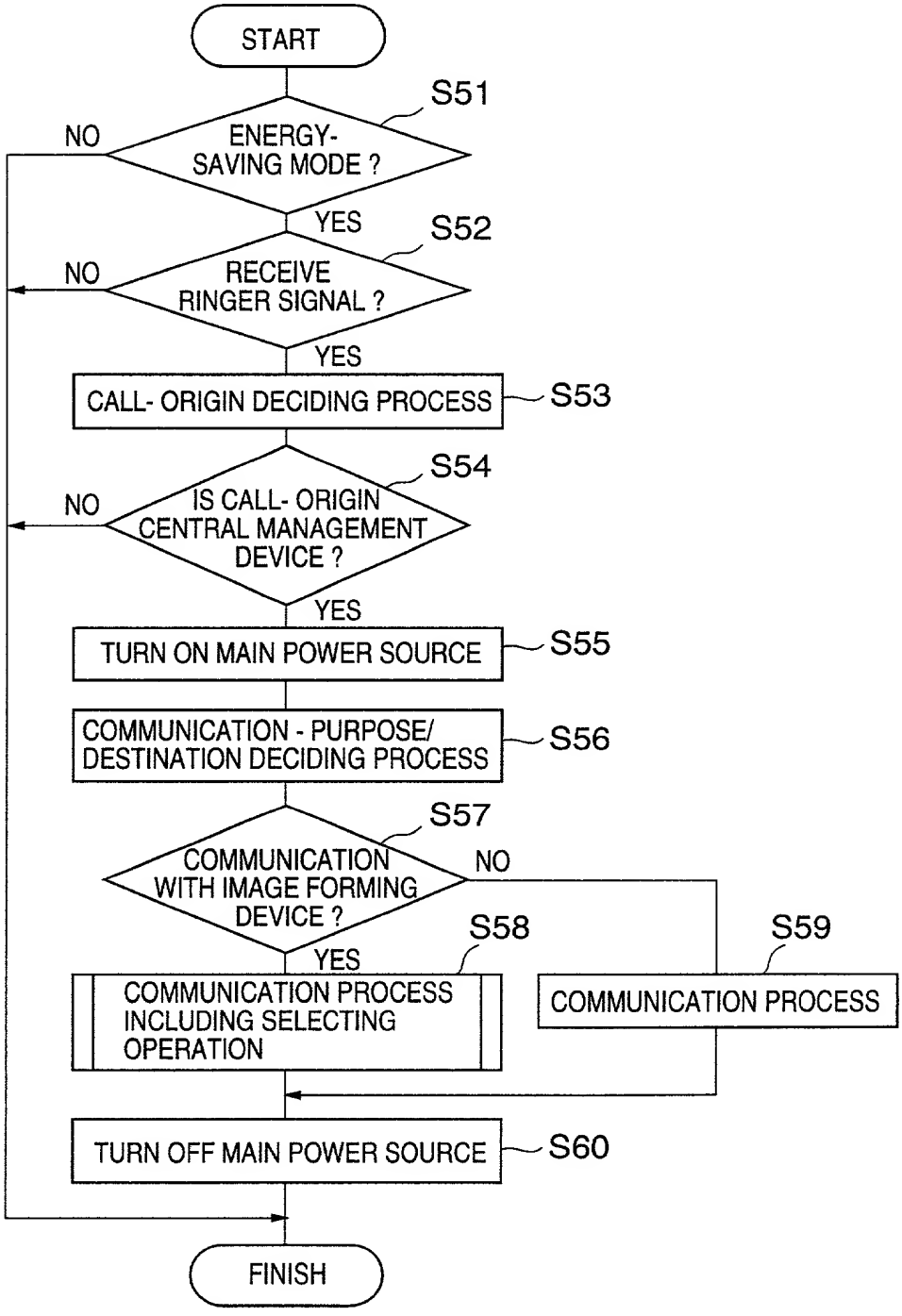
START
S51
ENERGY-SAVING MODE ?
NO
YES
S52
RECEIVE RINGER SIGNAL ?
NO
YES
CALL- ORIGIN DECIDING PROCESS
S53
S54
IS CALL- ORIGIN CENTRAL MANAGEMENT DEVICE ?
NO
YES
TURN ON MAIN POWER SOURCE
S55
COMMUNICATION - PURPOSE/ DESTINATION DECIDING PROCESS
S56
S57
COMMUNICATION WITH IMAGE FORMING DEVICE ?
NO
YES
S58
COMMUNICATION PROCESS INCLUDING SELECTING OPERATION
S59
COMMUNICATION PROCESS
TURN OFF MAIN POWER SOURCE
S60
FINISH

FIG.24A

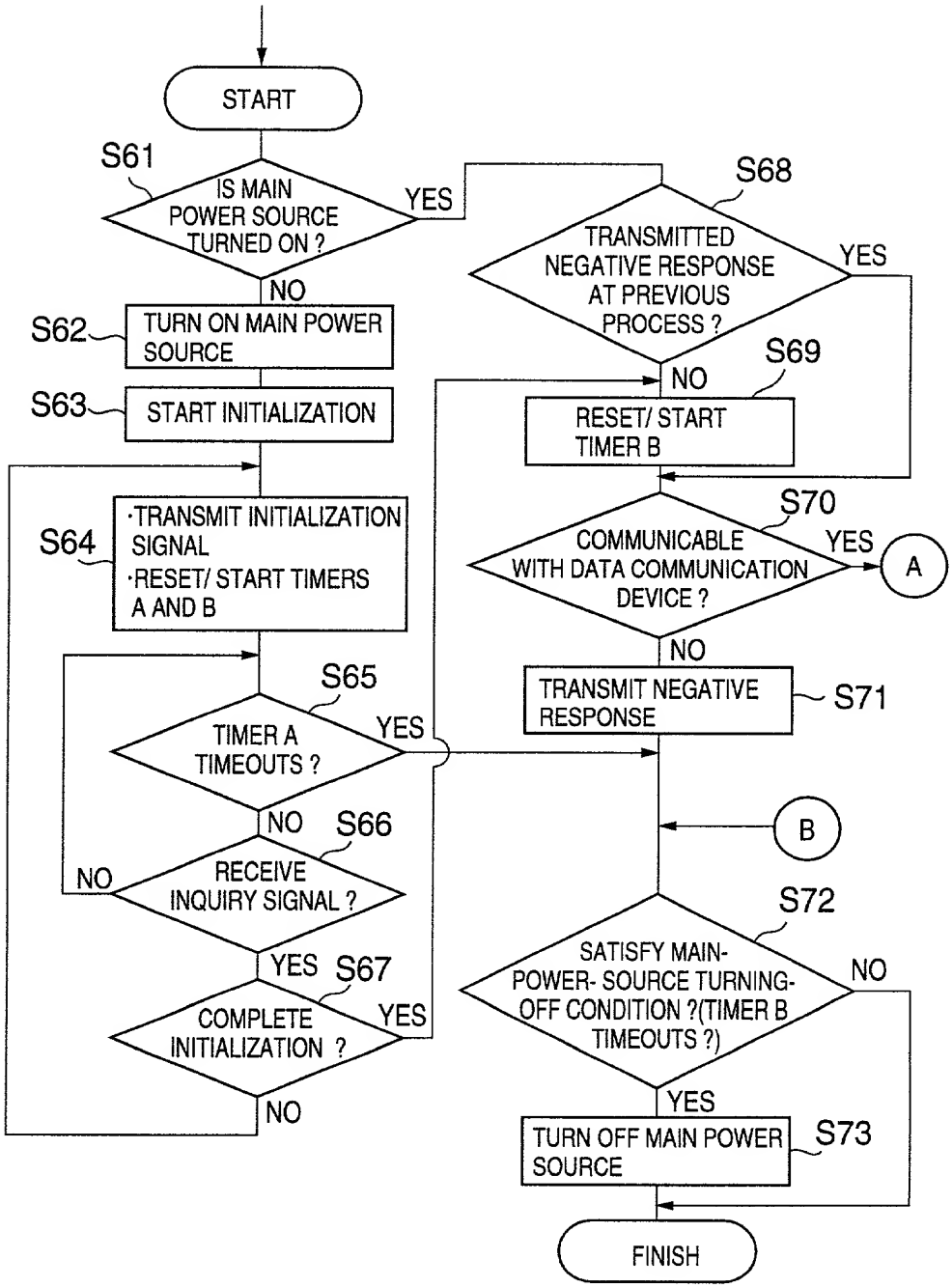
START
S61
IS MAIN POWER SOURCE TURNED ON ?
YES
NO
S62
TURN ON MAIN POWER SOURCE
S63
START INITIALIZATION
S64
·TRANSMIT INITIALIZATION SIGNAL
·RESET/ START TIMERS A AND B
S65
TIMER A TIMEOUTS ?
YES
NO
S66
RECEIVE INQUIRY SIGNAL ?
NO
YES
S67
COMPLETE INITIALIZATION ?
YES
NO
S68
TRANSMITTED NEGATIVE RESPONSE AT PREVIOUS PROCESS ?
YES
NO
S69
RESET/ START TIMER B
S70
COMMUNICABLE WITH DATA COMMUNICATION DEVICE ?
YES
A
NO
TRANSMIT NEGATIVE RESPONSE
S71
B
S72
SATISFY MAIN-POWER- SOURCE TURNING-OFF CONDITION ?(TIMER B TIMEOUTS ?)
NO
YES
TURN OFF MAIN POWER SOURCE
S73
FINISH

FIG.24B

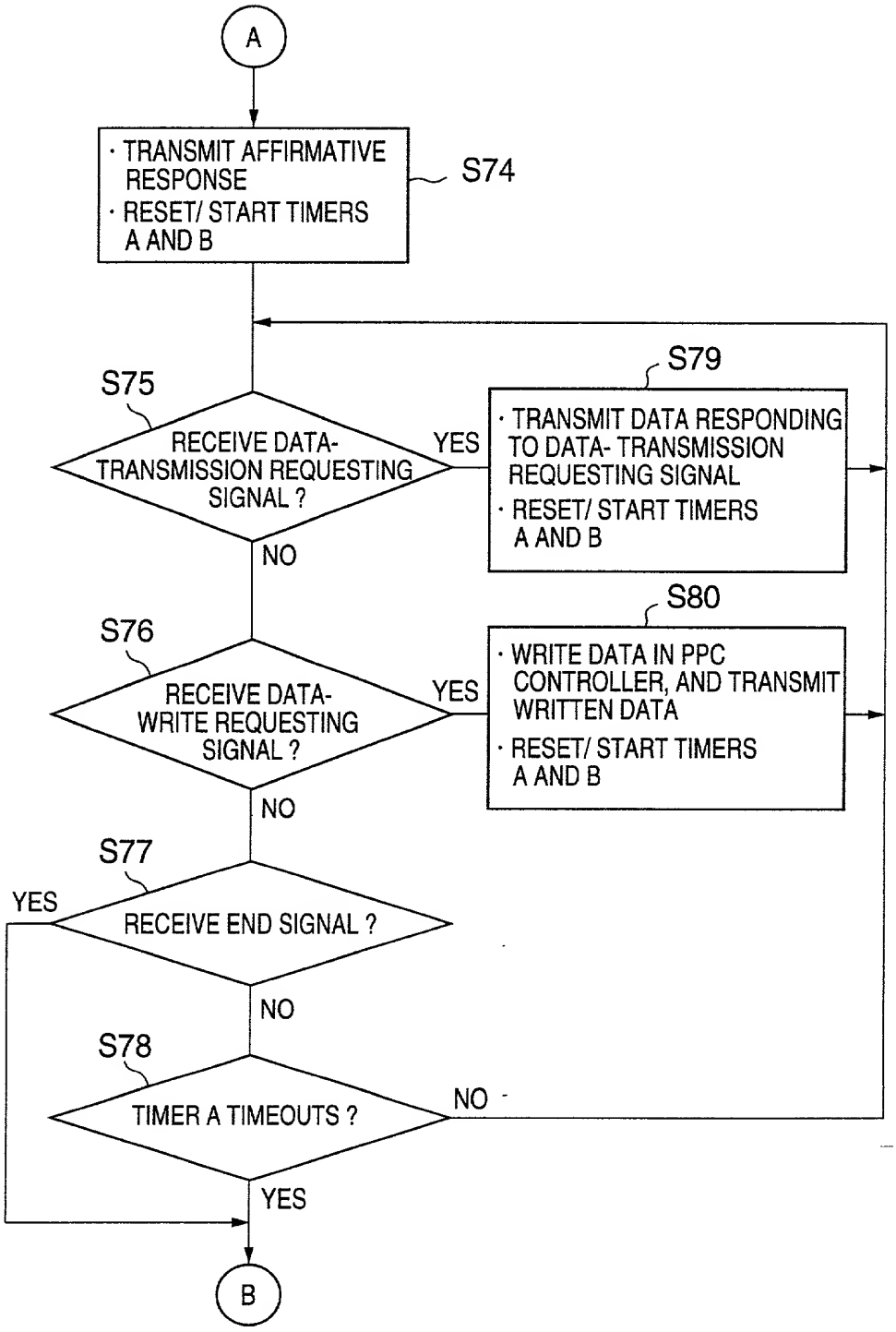
A
· TRANSMIT AFFIRMATIVE RESPONSE
· RESET/ START TIMERS A AND B
S74
S75
RECEIVE DATA-TRANSMISSION REQUESTING SIGNAL ?
YES
S79
· TRANSMIT DATA RESPONDING TO DATA- TRANSMISSION REQUESTING SIGNAL
· RESET/ START TIMERS A AND B
NO
S76
RECEIVE DATA-WRITE REQUESTING SIGNAL ?
YES
S80
· WRITE DATA IN PPC CONTROLLER, AND TRANSMIT WRITTEN DATA
· RESET/ START TIMERS A AND B
NO
S77
YES
RECEIVE END SIGNAL ?
NO
S78
TIMER A TIMEOUTS ?
NO
YES
B

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FIG.25

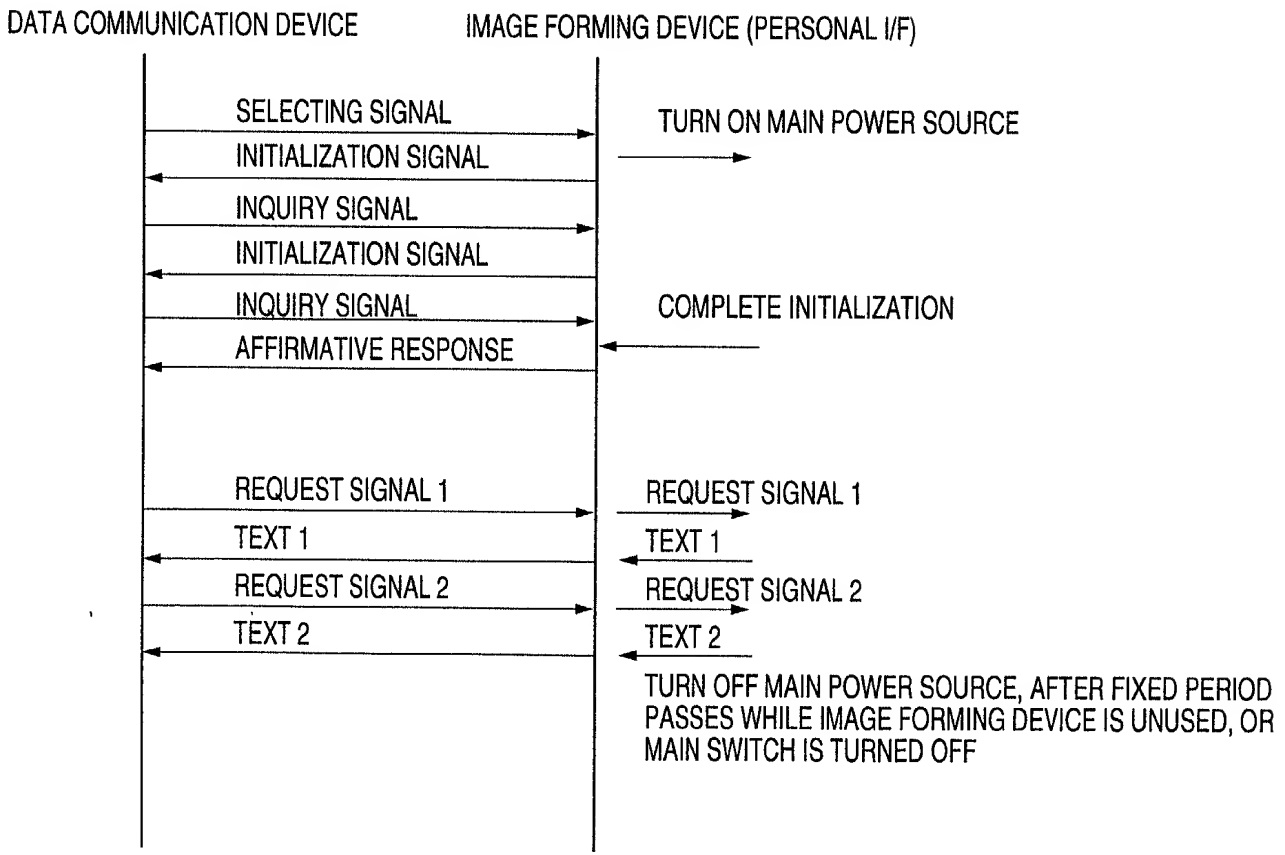

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FIG.26

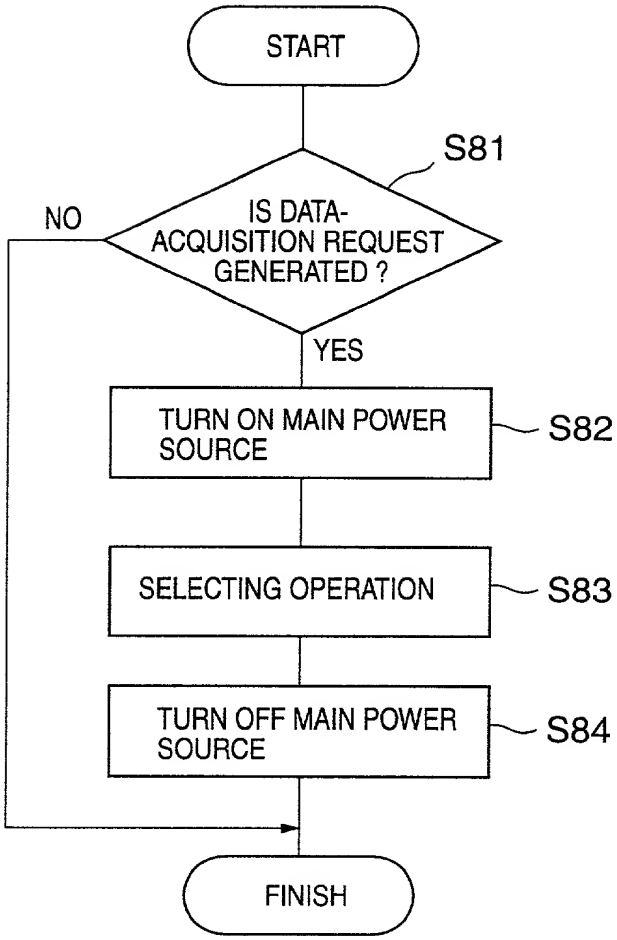

START
S81
IS DATA-ACQUISITION REQUEST GENERATED ?
NO
YES
TURN ON MAIN POWER SOURCE
S82
SELECTING OPERATION
S83
TURN OFF MAIN POWER SOURCE
S84
FINISH

FIG.27

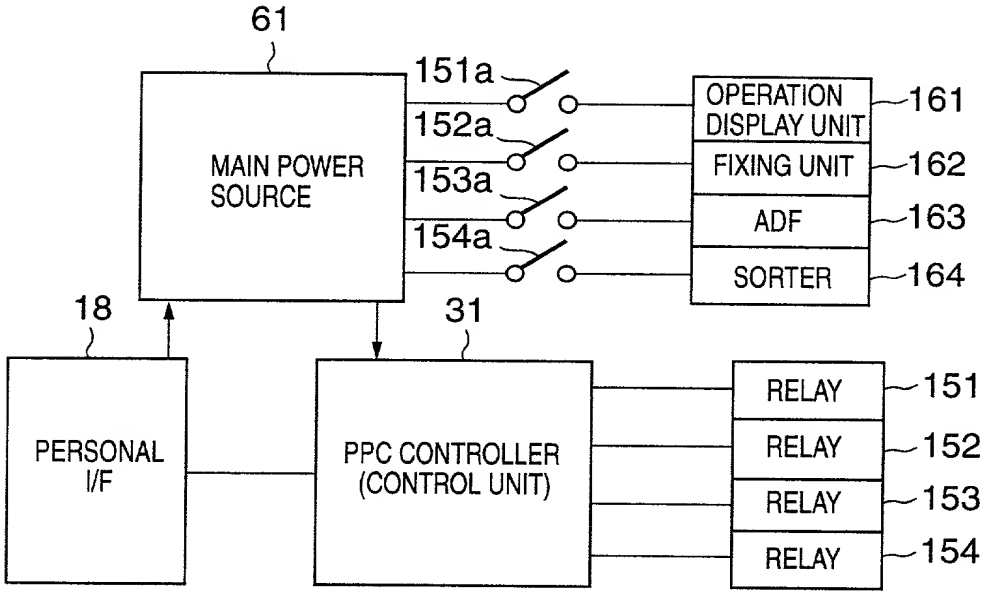


FIG.28

UNIT	SETTING
OPERATION DISPLAY UNIT	OFF
FIXING UNIT	ON
ADF	OFF
SORTER	OFF

SETTING

FIG.29

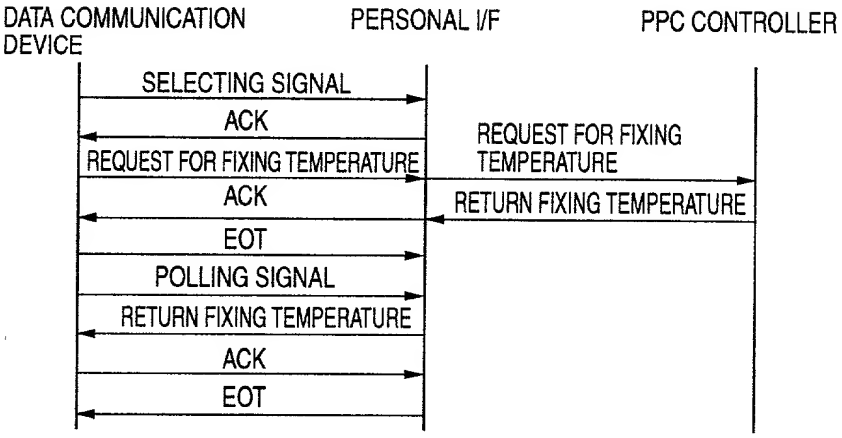


FIG.30

SYN	SOH	NUMBER	STX	POWER- SOURCE CONTROL INFORMATION	REQUEST FOR FIXING TEMPERATURE	ETX	LRC

FIG.31

BIT	PROCESS INFORMATION	NOTE
0	OPERATION UNIT 1:ON,0:OFF	
1	FIXING UNIT 1:ON,0:OFF	
2	ADF 1:ON,0:OFF	
3	SORTER 1:ON,0:OFF	
4		
5		
6		
7		

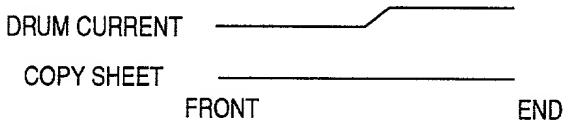
FIG.32

INFORMATION ABOUT REQUEST FOR FIXING TEMPERATURE	NOTE
5101105020000	

FIG.33

SYN	SOH	NUMBER	STX	POWER- SOURCE CONTROL INFORMATION	ETX	LRC

FIG.34



(IMAGE ON END SIDE BECOMES DARKER)

FIG.35

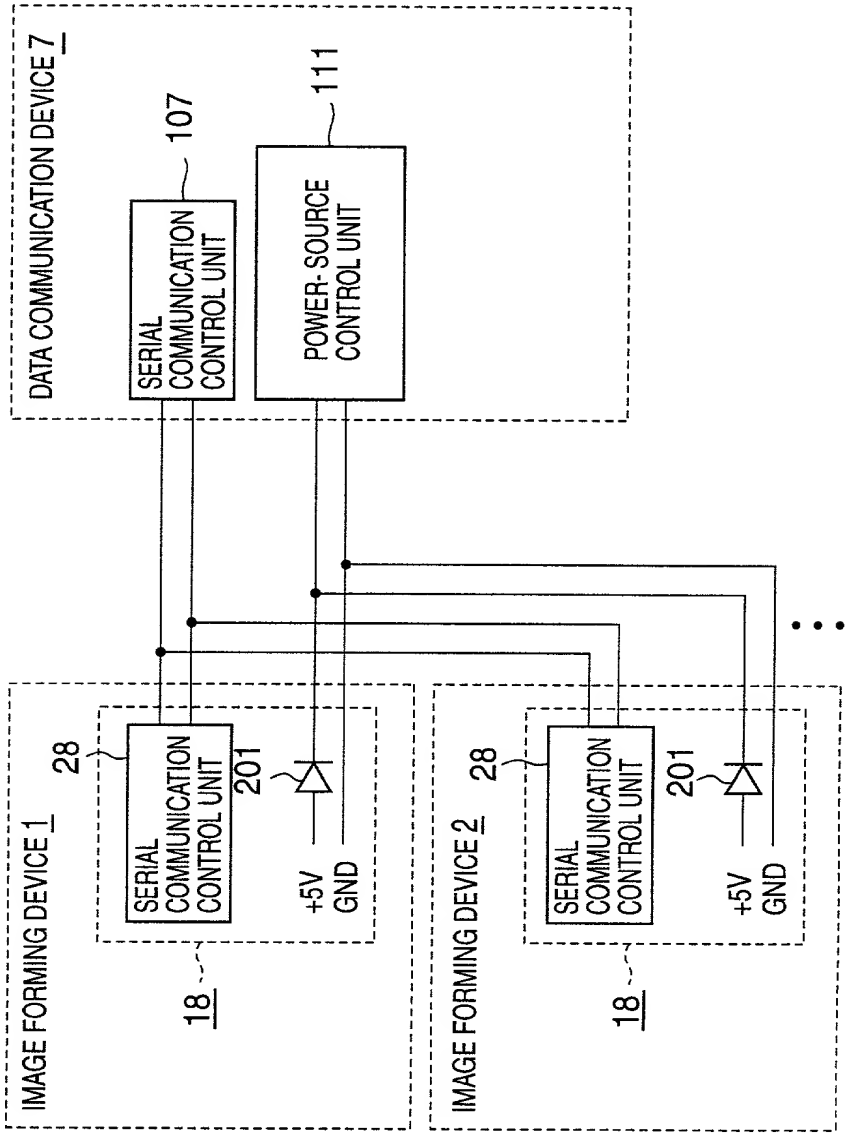

DATA COMMUNICATION DEVICE 7
SERIAL COMMUNICATION CONTROL UNIT
107
POWER-SOURCE CONTROL UNIT
111
IMAGE FORMING DEVICE 1
28
SERIAL COMMUNICATION CONTROL UNIT
201
+5V
GND
18
IMAGE FORMING DEVICE 2
28
SERIAL COMMUNICATION CONTROL UNIT
201
+5V
GND
18

FIG.36

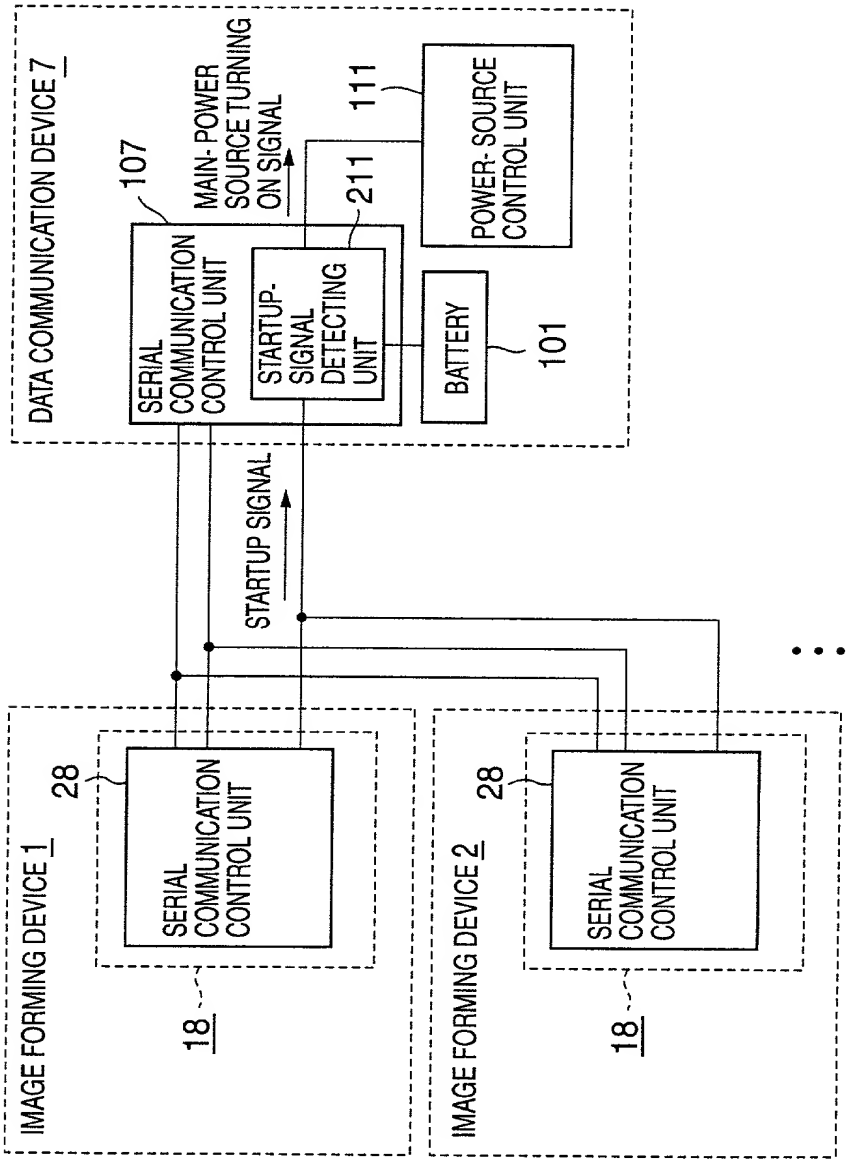

DATA COMMUNICATION DEVICE 7
107
SERIAL COMMUNICATION CONTROL UNIT
MAIN-POWER SOURCE TURNING ON SIGNAL
211
STARTUP-SIGNAL DETECTING UNIT
111
POWER-SOURCE CONTROL UNIT
BATTERY
101
STARTUP SIGNAL
IMAGE FORMING DEVICE 1
28
SERIAL COMMUNICATION CONTROL UNIT
18
IMAGE FORMING DEVICE 2
28
SERIAL COMMUNICATION CONTROL UNIT
18

FIG.37

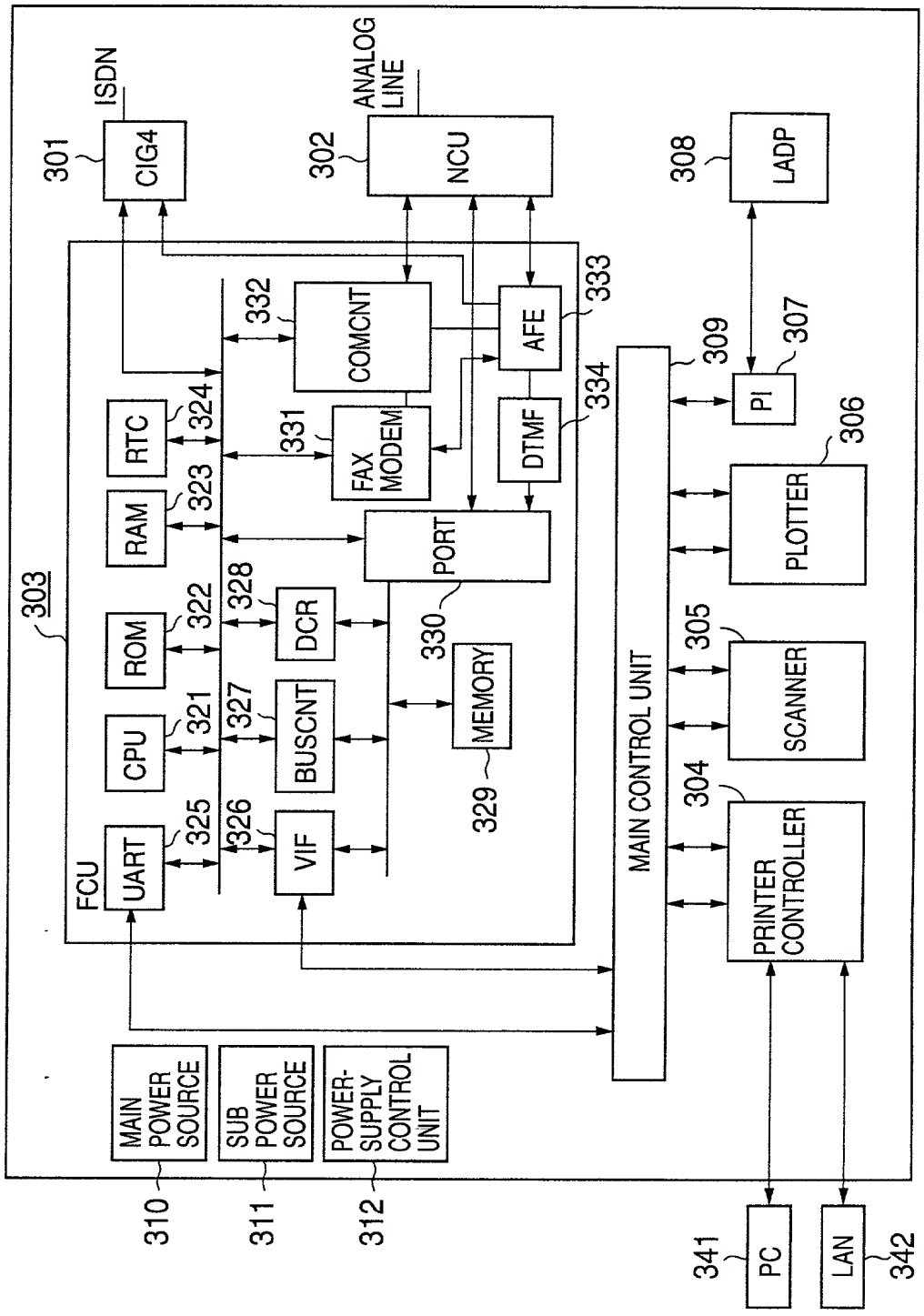

ISDN
ANALOG LINE
301
CIG4
302
NCU
308
LADP
303
FCU
UART
CPU
ROM
RAM
RTC
VIF
BUSCNT
DCR
COMCNT
FAX MODEM
PORT
AFE
DTMF
MEMORY
MAIN CONTROL UNIT
PI
PLOTTER
SCANNER
PRINTER CONTROLLER
MAIN POWER SOURCE
SUB POWER SOURCE
POWER-SUPPLY CONTROL UNIT
PC
LAN
310
311
312
341
342
304
305
306
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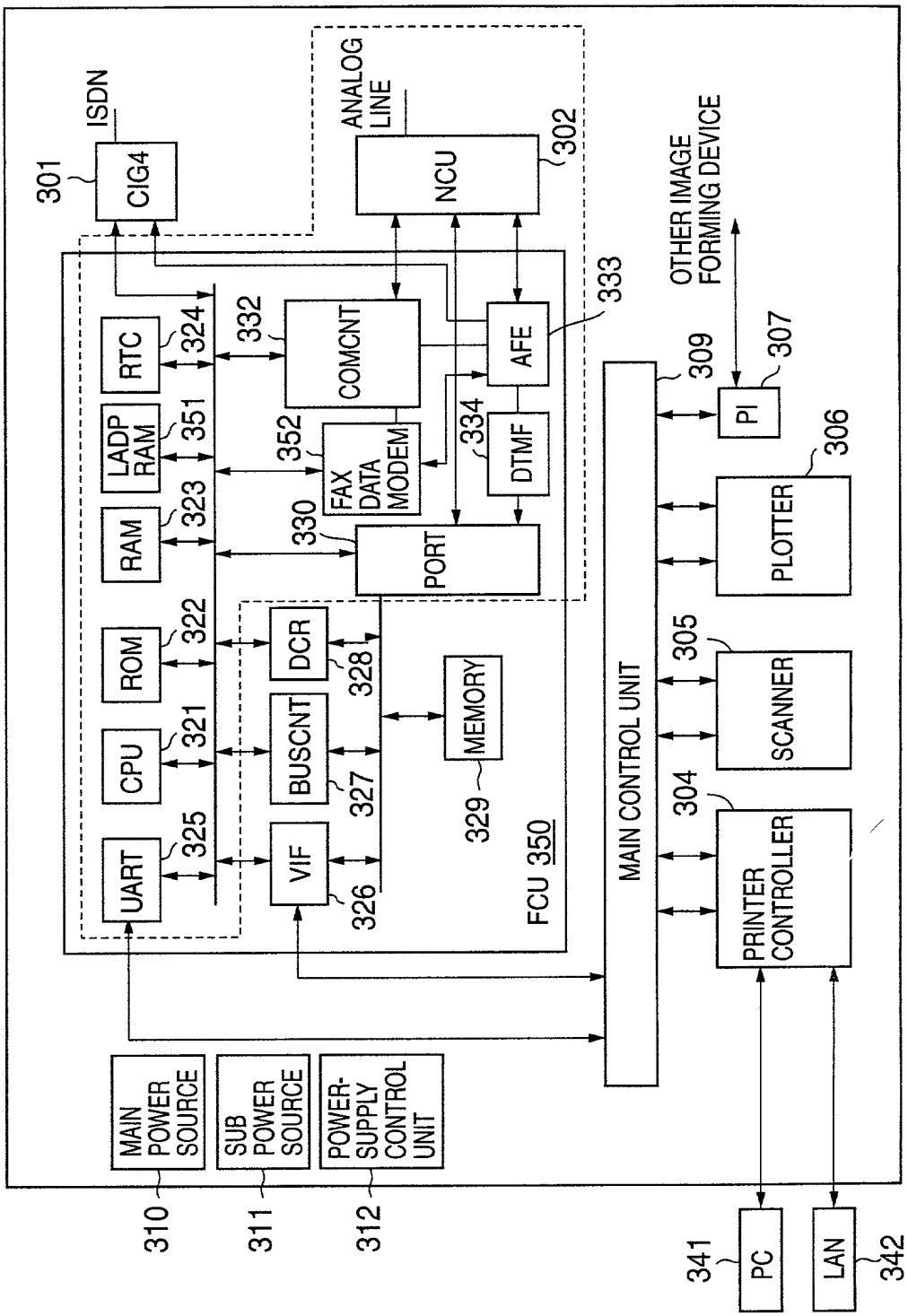
FIG.38


ISDN
301
CIG4
ANALOG LINE
NCU
302
OTHER IMAGE FORMING DEVICE
RTC
324
LADP RAM
351
RAM
323
ROM
322
CPU
321
UART
325
332
COMCNT
352
FAX DATA MODEM
330
PORT
AFE
333
DTMF
334
309
PI
307
PLOTTER
306
DCR
328
BUSCNT
327
VIF
326
MEMORY
329
FCU 350
MAIN CONTROL UNIT
305
SCANNER
304
PRINTER CONTROLLER
MAIN POWER SOURCE
SUB POWER SOURCE
POWER-SUPPLY CONTROL UNIT
310
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PC
LAN
342